DERWENT-ACC-NO: 1987-338599
DERWENT-WEEK: 198748

TITLE: Anisotropic electroconductive adhesive for bonding tape - comprises electroconductive filler having metal film on elastic material in heat adhesive polymer material

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APPLICATION-DATA:

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JP 62243668A	N/A	1986JP-0087352	April 16, 1986
JP 95002938B2	N/A	1986JP-0087352	April 16, 1986
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ABSTRACTED-PUB-NO: JP 62243668A

BASIC-ABSTRACT: Adhesive comprises, in a heat-adhesive polymer material, an electroconductive filler, having a film of metal or electroconductive metal oxide formed on an elastic material.

Pref. the elastic material is an organic polymer, plastics, or rubber powder. The elastic material is Nylon, PP, teflon, polyethylene, PU rubber, etc. The coating of the metal or metal oxide on the elastic material is carried out by wet electroplating, vacuum evaporation, sputtering, etc. The particle size of

the filler is 0.01-1000 micron. The electroconductive filler is e.g. crosslinked PS powder plated with Ni having an average dia. of 7-9 micron. The film thickness is 1000-2000 Angstroms. The specific gravity is 1.7-2.1. The intrinsic vol. is 1 - 7x10 power 2 ohm-cm. The ratio of filler to polymer is (1-70)/100.

USE/ADVANTAGE - Used for thermocompression bonding tape or film forming by screen printing. The prod. gives stable electrical contact. The filler does not ppte. because the specific gravity of filler and binder is similar.

TITLE-TERMS:
ANISOTROPE ELECTROCONDUCTING ADHESIVE BOND TAPE COMPRISE ELECTROCONDUCTING FILL
METAL FILM ELASTIC MATERIAL HEAT ADHESIVE POLYMER MATERIAL

DERWENT-CLASS: A81 G03 L03

CPI-CODES: A08-M09A; A08-R01; A09-A03; A12-A05; G03-B02; L03-A02D;

POLYMER-MULTIPUNCH-CODES-AND-KEY-SERIALS:
Key Serials: 0009 0210 0222 0123 0231 0239 0248 0304 0947 1283 1294 2020 2218
2219 2220 2370 2481 2482 2498 2499 2541 2551 2572 2651 2684 2816
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laser enhanced metal vapor dep
on Teflon - the
plate

TDB-ACC-NO: NN9205301

DISCLOSURE TITLE: Adherent Metal Pattern Coatings on Teflon.

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DISCLOSURE TEXT:

- This article describes a laser-enhanced metal deposition technique which allows coating TEFLON* with metal films of good adhesion.
- TEFLON is an important technological material wherever a low dielectric constant, good electrical insulation, and inertness to a wide range of chemical corrosion are required. However, because of its inertness, TEFLON metallization is extremely difficult to handle by conventional techniques.
- The recently introduced ion beam enhanced deposition (IBED) involves electron beam-induced metal deposition of, say, a TEFLON surface which is simultaneously irradiated with low-energy, high-current ion beams. The ion beams lead to microroughening and the creation of nucleation and bonding sites on the TEFLON surface, which allows the metal and the TEFLON material to interdiffuse at the metal/TEFLON interface and a strong adhesion of the deposited metal film.
- Laser-enhanced metal deposition, to which this article relates, offers several advantages over IBED. In contrast to IBED,

laser-enhanced desposition does not require a high vacuum. It uses only one laser and allows a patterned metallization of TEFLON surfaces, as will be described below.

- The laser-enhanced metal deposition technique uses standard XeCl excimer laser radiation of 10 to 20 nsec. pulse length. The laser beam serves to irradiate the TEFLON surface and a metal target for standard CVD (chemical vapor deposition). A beam splitter divides the laser beam appropriately.
- XeCl excimer laser radiation of 10 to 20 nsec. pulse length does not ablate TEFLON but only heats up and modifies the TEFLON surface. Thus, at adequate laser fluence, the top surface layer of the TEFLON substrate is locally melted.
- It is well-known that hot metal particles falling onto a cold polymer interface are strongly adherent. In the present case, however, adhesion is obtained even with cold metal particles falling onto the hot molten TEFLON surface. This produces the desired interdiffusion of metal and TEFLON at the interface. Subsequent laser pulses are incapable of removing the metal particles dropping from the interdiffusion layer, and, as laser pulses continue, a film of increasing metal content is obtained. At that stage, laser irradiation of the sample can be stopped, while the growth of the metal film continues solely by laser CVD.
- The previously described technique which produces full film metal deposition of TEFLON surfaces may be extended for patterned metal deposition. A mask containing the desired pattern is projected by XeCl laser radiation onto the sample. In the irradiated areas, highly adherent metal films are obtained, while in the non-irradiated and, thus, unheated areas, the adhesion of the metal particles is weak. These weakly adherent particles can be removed by a gentle ultrasonic cleaning step. Metal films of several micrometers are obtained by using the described laser enhanced metal deposition to coat a thin seeding layer (of some 10 to 50 nm) and then grow the necessary metal thickness by, e.g., electroplating.

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